



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,981	08/02/2001	Hassan Taheri	39000	6122

4249 7590 07/28/2004

CAROL WILSON
BP AMERICA INC.
MAIL CODE 5 EAST
4101 WINFIELD ROAD
WARRENVILLE, IL 60555

EXAMINER

MCHENRY, KEVIN L

ART UNIT PAPER NUMBER

1725

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/920,981	TAHERI ET AL.	
	Examiner	Art Unit	
	Kevin L McHenry	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 11-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/3/03</u> | 6) <input type="checkbox"/> Other: _____ |

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters “4-12” have been used to designate different parts in Figures 2 and 4.
4. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:
On page 13, line 20, “manual” should instead be “manifold”.
Appropriate correction is required.

Claim Objections

4. Claim 10 is objected to because of the following informalities:
Claim 10, which depends upon claim 7, repeats limitations of claim 7 before further limiting that claim. Claim 10 should instead read “...wherein the geometric factor has values in the range from about 0.015 to about 0.100.”
Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 29 29 300.

DE 29 29 300 teaches a flow reactor for heterogeneous catalyst reactions that has a plurality of conduits that have outer surfaces arranged to contact a heat transfer medium. The reactor includes inlet and outlet manifolds for the flow channels and a shell encloses the reactor to form inlets and outlets for the heat transfer medium. The channels are comprised of zones with the zones have a uniform cross-section throughout their length. DE 29 29 300 shows that three zones may be used for a channel and teaches that the channels are sized to optimize heat transfer for exothermic or endothermic reactions. Downstream zones of the channels are sized differently and may be sized to have a larger cross-section and volume. In the example of Figure 2, DE 29 29 300 teaches that the total length of the zones may be 8 m. (See DE 29 29 300; abstract and Figures 1-3; pages 2-7 of translated copy provided by applicant).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1725

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 29 29 300 as applied to claims 1-6 and 9 above.

DE 29 29 300 teaches the flow reactor noted above in section 6. However, while DE 29 29 300 does teach a relationship between the channel diameter and the flow per unit time through that pipe, it does not specifically teach that the diameter of a channel zone cubed is equal to the volume of that zone multiplied by a factor.

In Figures 1 and 3, DE 29 29 300 shows that downstream zones of channels may be of larger diameter than the previous zones. However, DE 29 29 300 does not teach any dimension for these examples. DE 29 29 300 gives dimensions for the example in Figure 2 where a second zone has a larger diameter than the first and third zones. In comparing the relationship of zone diameter cubed to the volume of the zone for the first and second zones, where the second zone has a larger diameter than the first, the second zone has a larger factor than the first and both zones have a factor that is between 0.015 and 0.100. (See DE 29 29 300; abstract and Figures 1-3; pages 2-7 of translated copy provided by applicant).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made that the factor for the final zone, which has the largest diameter, in Figure 1 could have a factor larger than the previous two zones and that this factor could be between 0.015 and 0.100. One would have been motivated to design zone dimensions to properly regulate heat transfer, provide an optimal temperature

Art Unit: 1725

gradient, and provide larger diameter zones where less heat needs to be removed, as taught by DE 29 29 300.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lorenz et al. (U.S.P. 3,566,961) and de Lasa (U.S.P. 4,929,798) are cited of interest for illustrating the state of the art in flow reactors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L McHenry whose telephone number is (571) 272-1181. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin McHenry

Kiley Stoner AU 1725
Kiley Stoner 7/26/09